

with an entrance control volume, an outlet in fluid communication with an exit control volume, and a different candidate catalyst in the reaction vessel,
controlling the flowrate of the one or more reactants to be about the same in the six or more vessels by simultaneously flowing the reactants through six or more flow restrictors, each of six or more flow restrictors providing fluid communication between one of the six or more vessels and the entrance control volume,
contacting the six or more different candidate catalysts with the one or more reactants in the six or more reaction vessels under reaction conditions for the reaction of interest, and
detecting the reaction products or unreacted reactants to determine the efficacy of the six or more catalyst candidates.

-- 98. (new) A method for screening catalysts for a reaction of interest, the method comprising

simultaneously feeding one or more reactants through six or more reaction vessels, each of the six or more vessels comprising a different candidate catalyst,
controlling the flowrate of the one or more reactants to be about the same in the six or more reaction vessels by simultaneously flowing the one or more reactants through six or more flow restrictors, the flow restrictors being capillary tubes or micromachined channels, each of the six or more flow restrictors providing fluid communication between one of the six or more reaction vessels and (i) an entrance control volume, and additionally or alternatively, (ii) an exit control volume,

contacting the candidate catalysts with the one or more reactants in the six or more reaction vessels under reaction conditions for the reaction of interest, and
detecting resulting reaction products or unreacted reactants to determine the efficacy of the six or more catalyst candidates.

--99. (new) The method of claims 72 or 98 further comprising
discharging reaction products and unreacted reactants, if any, from the six or more reaction vessels, and

sampling the discharged reaction products or unreacted reactants with a sampling probe, the sampling probe being in fluid communication with one or more detectors.

--100. (new) The method of claims 62, 72 or 98 wherein the time from initial contact of a catalyst with the reactants to detection of the reaction products or unreacted reactants is approximately the same for each of the plurality of catalysts.

--101. (new) The method of claims 62, 72 or 98 wherein the detecting step determines the reaction products or unreacted reactants using gas chromatography, mass spectrometry, visible spectrometry, ultraviolet spectrometry, ultraviolet spectrometry or infrared spectrometry.

--102. (new) The method of any of claims 62, 72 or 98 wherein the six or more catalysts are exposed to a uniform temperature or a temperature gradient.

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--103. (new) The method of any one of claims 62, 72 or 98 wherein the catalysts are confined in the reaction vessels in the form of fixed beds.

--104. (new) The method of any one of claims 72 or 98 wherein the fluid handling system comprises

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a selection valve providing selective fluid communication between a selected vessel and the detector, such that the reaction products or unreacted reactants can be sequentially directed from the selected vessel to the detector, and

a fluid distribution valve providing selective fluid communication between the entrance control volume and the inlet of a selected vessel, such that the reactants can be directed into the selected vessel,

the method further comprising synchronizing the fluid distribution valve and the selection valve such that a time interval between the initial contact of the test fluid